

In the Claims:

1. (currently amended): A method using an electronic circuit comprising:
combining a radio frequency (RF) signal, ~~its reference signal, and a third and another~~
signal which has a predetermined frequency to generate an output signal, which is
further combined with the RF signal's reference signal to obtain ~~provide~~ a new
signal, wherein the new signal's frequency is solely responsive to the
predetermined frequency ~~of the third signal~~ and the new signal's phase is
responsive to that of the RF signal.
2. (original) A method as described in claim 1 further comprising:
generating the third signal using a crystal-stabilized oscillator.
3. (original) A method as described in claim 1 further comprising
converting the RF signal and its reference signal to an intermediate frequency.
4. (original) A method as described in claim 1 further comprising
converting the new signal to an signal selected from the group consisting of an audio,
video, digital and analog signal.
5. (original) A method as described in claim 1 further comprising transmitting the RF signal
using an electronic conductor selected from the group consisting of antenna and cable.

6. (currently amended): A method using an electronic circuit to convert a radio frequency (RF) signal comprising:

combining the RF signal and another signal, which has a predetermined frequency, to provide at least one output signal;

combining the output signal with the RF signal's phase-shifted reference signal to provide two new output signals;

combining the two new output signals to provide a new signal whose frequency is solely responsive to the predetermined frequency and whose phase is responsive to that of the RF signal.

7. (previously presented): A method as described in claim 6 further comprising generating the signal which has the predetermined frequency using a crystal-stabilized oscillator.

8. (previously presented): A method as described in claim 6 further comprising converting the RF signal and its reference signal into an intermediate frequency.

9. (previously presented): A method as described in claim 6 further comprising converting the new signal to a signal selected from the group consisting of an audio, video, digital and analog signal.

10. (previously presented): A method as described in claim 6 further comprising transmitting the RF signal using an electronic conductor selected from the group consisting of antenna and cable.

11. (original) An apparatus comprising a signal source, three multipliers, two 90 degree phase shifters, and an adder for converting a radio frequency (RF) signal to a new signal whose frequency is solely responsive to a predetermined signal frequency provided by the signal source and whose phase is responsive to that of the RF signal.
12. (original) An apparatus as described in claim 11 wherein the signal source is a crystal-stabilized oscillator.
13. (original) An apparatus as described in claim 11 further comprising at least one power splitter.
14. (original) An apparatus as described in claim 11 further comprising at least one signal amplifier.
15. (original) An apparatus as described in claim 11 further comprising at least one automatic gain circuit.
16. (original) An apparatus as described in claim 11 further comprising another apparatus for converting the RF signal to an intermediate frequency.
17. (original) An apparatus as described in claim 11 further comprising at least one harmonic mixer and one local oscillator.

18. (previously presented): An apparatus as described in claim 11 further comprising a device for converting the new signal to a signal selected from the group consisting of an audio, video, digital and analog signal.

19. (original) An apparatus for converting a radio frequency (RF) signal and its reference signal comprising

a signal source for providing a signal with a predetermined frequency;

a first multiplier for combining a signal responsive to the RF signal and another signal responsive to the signal generated by the signal source, and providing at least one output signal;

a second multiplier for combining a signal responsive to the reference signal and another signal responsive to the output signal from the first multiplier, and providing an output signal;

a first 90 degree phase shifter for receiving a signal responsive to the reference signal, and generating an output signal;

a third multiplier for combining a signal responsive to the output signal from the first multiplier and a signal responsive to the output signal from the first 90 degree phase shifter, and providing an output signal;

a second 90 degree phase shifter for receiving a signal responsive to a signal selected from the group consisting of the output signal from the second multiplier and the output signal from the third multiplier, and providing an output signal; and

an adder for combining a signal responsive to the output signal from the second multiplier and another signal responsive to the output signal from the third multiplier, and providing a new signal.

20. (original) An apparatus as described in claim 19 wherein the signal source is a crystal-stabilized oscillator.

21. (original) An apparatus as described in claim 19 further comprising at least one power splitter.

22. (original) An apparatus as described in claim 19 further comprising at least one signal amplifier.

23. (original) An apparatus as described in claim 19 further comprising at least one automatic gaining circuit.

24. (original) An apparatus as described in claim 19 further comprising a device for converting the RF signal and its reference signal to an intermediate frequency.

25. (previously presented): An apparatus as described in claim 19 further comprising a device for converting the new signal to a signal selected from the group consisting of an audio, video, digital and analog signal.

26. (original) An apparatus for converting a radio frequency (RF) signal and its reference signal comprising

- a signal source for providing a signal with a predetermined frequency;
- a first multiplier for combining a signal responsive to the RF signal and another signal responsive to the signal generated by the signal source, and providing at least one output signal;
- a second multiplier for combining a signal responsive to the reference signal and another signal responsive to the output signal from the first multiplier, and providing an output signal;
- a first 90 degree phase shifter for receiving a signal responsive to the output signal from the first multiplier, and generating an output signal;
- a third multiplier for combining a signal responsive to the reference signal and another signal responsive to the output signal from the first 90 degree phase shifter, and providing an output signal;
- a second 90 degree phase shifter for receiving a signal responsive to a signal selected from the group consisting of the output signal from the second multiplier and the output signal from the third multiplier, and providing an output signal; and
- an adder for combining a signal responsive to the output signal from the second multiplier and another signal responsive to the output signal from the third multiplier, and providing a new signal.

27. (original) An apparatus as described in claim 26 wherein the signal source is a crystal-stabilized oscillator.

28. (original) An apparatus as described in claim 26 further comprising at least one power splitter.

29. (original) An apparatus as described in claim 26 further comprising at least one signal amplifier.

30. (original) An apparatus as described in claim 26 further comprising at least one automatic gaining circuit.

31. (original) An apparatus as described in claim 26 further comprising an apparatus for converting the RF signal and its reference signal to an intermediate frequency.

32. (previously presented): An apparatus as described in claim 26 further comprising a device for converting the new signal to a signal selected from the group consisting of an audio, video, digital and analog signal.

33. (currently amended): A method using an electronic circuit comprising:
combining a radio frequency (RF) signal ~~its reference signal, and a third and another~~
signal which has a predetermined frequency to generate an output signal, which is further
combined with the RF signal's reference signal to obtain ~~provide~~ a new signal, wherein
the new signal's frequency has the same predetermined frequency ~~of the third signal~~ and

the new signal's phase is responsive to that of the RF signal without the use of a phase locked loop or a similar phase lock device.

34. (previously presented): An apparatus comprising a signal source, three multipliers, two 90 degree phase shifters, and an adder for converting a radio frequency (RF) signal to a new signal whose frequency is the predetermined signal frequency provided by the signal source and whose phase is responsive to that of the RF signal without the need of a phase locked loop or a similar phase lock device.